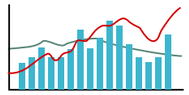
Performance monitoring and surveillance

Multiple autonomous UAS with variety of sensors to monitor performance, identify problems and feed back to a central system.

Example: Tracking worker performance, or for safety / security.

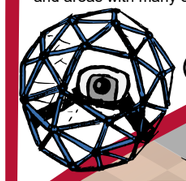


1

Caged UAS

System able to navigate through otherwise difficult to access locations with protective 'cage'.

Example: Inspecting interior of pipes and areas with many obstacles.



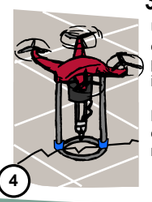
2

Remote inspection of high risk areas

Use of UAS to remotely inspect areas, reducing health and safety risk - e.g. inspection of High Voltage electrical systems / connections, or working at height.

3

3D printing repairs

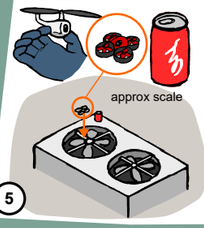


UAS with 3D printer - enables rapid 3D printing, to otherwise inaccessible locations.

Example: Rapid emergency repair for roofing or pipes.

4

Nano UAS

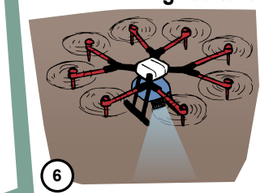


Accessing and inspecting areas with restricted access.

Examples: Inspecting ventilation system, pipework, under trains / vehicles, access through small windows, etc.

5

Agriculture / Crop spreading

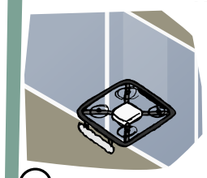


Autonomous UAS - capable of following pre-determined path.

Examples: Dispersing seeds, fertilising, monitoring crops, and directing other agricultural vehicles, measuring topology.

6

Remote cleaning



Using UAS to clean areas which would require specialist equipment to access.

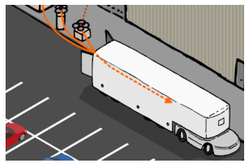
Examples: Window cleaning on tall buildings, cleaning boats, large vehicles.

7

Integration with other autonomous systems

17

Seamless integration with other autonomous platforms at various scales such as (A) trolleys, (B) cars / taxis, (C) trucks, (D) boats or (E) container ships (for autonomous loading and distribution of goods).



Security & surveillance

16

Following perimeter / path with recording equipment and feeding back to central point - allowing for more flexible security and surveillance.

Point-to-point delivery

15

Direct delivery of payloads to any target destinations, reducing delivery times and the environmental impact.

Examples: Package delivery, medical supplies.

Relocatable adverts / public messages

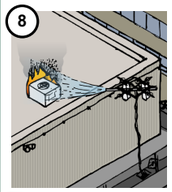
14

Single or multiple drones to autonomously carry and relocate information displays where desired, to more effectively communicate.

Examples: Rapidly deploying road signs or advertising displays.

Firefighting

8



Targeted firefighting with rapid response for areas difficult to access with traditional firefighting equipment.

Construction

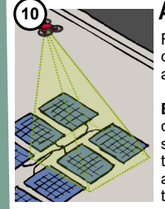
9

Use of swarm of UAS to assemble structures autonomously.

Example: Autonomously constructing scaffolding.

Asset inspection

10



Remote inspection and condition monitoring of assets.

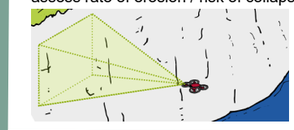
Examples: Wind turbine condition monitoring, solar panel inspection - through visual inspection, and / or specialised thermal imaging or acoustic sensors.

Structural assessment

11

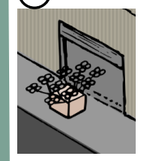
Scanning to assess structural condition.

Example: Remote scanning of cliffs to assess rate of erosion / risk of collapse.



Collaborative swarms

12



Multiple UAS working together autonomously to complete tasks - with greater payload capacity, or wider coverage.

Examples: Transporting packages, surveying large areas.

Extending distance

13

Use of other transport systems to reduce the power requirement and extend range of UAS.

Examples: On train to travel long distances then facilitate 'last mile' delivery by UAS.

The Future of UAS

A look into how Unmanned Aerial Systems (UAS) could provide significant benefit through a wide range of applications.

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